Week 2 : Situation Report RVIB Nathaniel Palmer, Elephant Island Grid, Antarctica

Krill catch in the Bransfield Strait from one station: total volume = 80 L

After departing Admiralty Bay, having failed to calibrate the acoustic transducers because of ice and wind, the US AMLR Program proceeded to sample within the Bransfield Strait. Although the intent was to quickly sample these stations and move to the west shelf, heavy ice and strong winds from the east (>45 mph) slowed the progress to a near standstill for the better part of two days. Additionally, engine issues (later resolved) required sampling only on the northern side of Bransfield Strait where ice was thinner. This impacted our ability to sample within the pack ice that covered more than half the width of the Strait, and required more than three days to collect the first eleven stations. Eleven stations were sampled along the north side of the Bransfield, when large catches of krill began to appear in the nets. At many stations, the cod ends were stuffed and krill filled the back of the net to almost a meter in height. Highest catches in the region exceeded 89,000 krill estimated from sub samples. Seeing that this was a major aggregation, an additional 10 stations were sampled in a small grid extending from east of Deception Island southwest to the mouth of Gerlache Strait. The average number of krill across all stations in the Bransfield was more than 330 m^2. This is 38 times higher than the amount of krill collected during Leg A of 2009, and the highest abundance ever recorded by the US AMLR Program in any of the four regions sampled since 1990. Given the area of this region is some 8,000 km^2, it potentially represents an important overwinter area for krill and their predators. In addition to krill, mammal and bird observers recorded extremely high densities of Adelie penguins, Antarctic fur seals, crabeater seals, leopard seals, and orcas. Additionally, thousands of flying birds were observed feeding on krill, and ice floes were marked by the distinctive pink of krill from seal scat and bird droppings. Chlorophyll-a concentrations were low, almost at the detection limits of the instruments.

After completing the survey and the remaining stations within the South Area, we proceeded to the West Shelf survey area to begin sampling there. However, winds picked up to more than 70 nmi hr^{-1}, and seas outside of ice areas were more than 3 meters. The winds continued from the 19th through the 20th,

and exceeded 100miles hr^{-1} for more than 2 hours. Given the loss of time, we decided to move the sampling to the Elephant Island grid to ensure that comparisons of distribution abundance of krill and other physical and biological components of the ecosystem can be compared with last year's shakedown survey. The survey began on the morning of 21 August, and proceeded north along line 09 of the Elephant Island grid. The strong easterly winds have transported large ice floes far to the north in this area, completely covering areas that last week were just grease and pancake ice. We have just completed the sixth station along this line, and will be turning east along 60 degrees south to sample the most seaward stations while conditions remain calm.

From the RVIB Nathaniel B. Palmer

Christian Reiss

The morning of August 21, just east of Elephant Island.